

REMARKS

Introductory Comments

As of the mailing date of the March 17, 2010 Office Action, claims 1, 2, 4-21, and 23-26 were pending in the present application. In the present Amendment, claim 14 has been canceled without prejudice, and claims 1 and 19 have been amended, leaving claims 1, 2, 4-13, 15-21, and 23-26 for consideration upon entry of the present Amendment. The claims have been amended as explained below. The amendments have been made to place the application in condition for allowance or in better form for appeal. Reconsideration and allowance of the claims is respectfully requested in view of the foregoing amendments and the following remarks.

Claim Amendments

Claim 14 has been canceled without prejudice.

Claim 1 has been amended to incorporate the limitation, “wherein the weight ratio of the polymer to the chelating agent is from 1:4 to 4:1”. Support for this limitation can be found, at least, in the application as filed at page 11, lines 21-23.

Claim 19 has been amended to incorporate three alternative chelating agent structures. Support for this amendment can be found, at least, in the application as filed at page 8, line 33 to page 9, line 7 (first structure); page 10, lines 5-13 (second structure); and page 10, line 28 to page 11, line 11 (third structure).

Applicants are not conceding in this application that the canceled claim is not patentable over the art cited by the Examiner. Nor are Applicants conceding that the amended claims would not have been patentable without the current amendments. The present claim cancellation and amendments are intended only to facilitate expeditious allowance of valuable subject matter. Applicants respectfully reserve the right to present and prosecute the original versions of canceled and amended claims in one or more continuing applications.

Anticipation Rejections over Yamaguchi

Claims 1, 4-6, and 10 stand rejected under 35 U.S.C. § 102(b) as anticipated by Yamaguchi et al, USP 5,135,677. 03/17/2010 Office Action, page 4, paragraph no. 11. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

U.S. Patent No. 5,135,677 to Yamaguchi et al. (hereinafter “Yamaguchi”) generally describes a process for producing an acid-type polymaleic acid and acid-type maleic acid copolymer and also to the usage of the acid-type polymaleic acid and acid-type maleic acid copolymer produced by the process. Yamaguchi abstract.

Applicants respectfully assert that claims 1, 4-6, and 10 are not anticipated by Yamaguchi because Yamaguchi does not teach Applicants’ claim 1 polymer to chelating agent weight ratio of 1:4 to 4:1.

Anticipation requires that all of the limitations of the claim be found within a single prior art reference. *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991).

Claim 1 as currently amended requires that the weight ratio of the polymer to the chelating agent is from 1:4 to 4:1. In the context of a previous rejection of claim 19 over Yamaguchi, Applicants argued that Yamaguchi does not teach a polymer to chelating agent weight ratio in the range 1:4 to 4:1. 12/17/2010 Amendment, page 12, first paragraph. The Office then acknowledged that this argument was persuasive. 03/17/2010 Office Action, page 3, paragraph no. 7 (“Applicant's argument on the concentration of the chelating agent utilized by Yamaguchi is persuasive.”). Furthermore, the weight ratio limitation was previously presented in claim 14, which is not subject to the present rejection. Yamaguchi therefore fails to anticipate claim 1 as currently amended. Claims 4-6 and 10, which each depend ultimately from and further limit claim 1, are also not anticipated by Yamaguchi.

Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claims 1, 4-6, and 10 under 35 U.S.C. 102(b) over Yamaguchi.

Anticipation Rejections over Maeda

Claims 19-21, 23, and 25 stand rejected under 35 U.S.C. § 102(e) as anticipated by Maeda et al., USP 6,780,832. 03/17/2010 Office Action, page 5, paragraph no. 15. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

U.S. Patent No. 6,780,832 to Maeda (hereinafter “Maeda”) generally describes a water-soluble polymer allegedly exhibiting a high calcium-ion-scavenging function and a high clay-dispersing function even in high-hardness water. Maeda abstract. Maeda teaches the use of “dyeing agents, peroxides, and surfactants in a ratio of 0.1 to 100 weight parts per 1 weight part of the water-soluble polymer”. Maeda, column 15, lines 13-15.

Applicants respectfully assert that claims 19-21, 23, and 25 are not anticipated by Maeda because Maeda does not teach Applicants’ claim 19 polymer to chelating agent weight ratio of 1:4 to 4:1, where the chelating agent has structure II or structure III or structure IV.

Applicants’ claim 19 as currently amended requires a polymer to chelating agent weight ratio of 1:4 to 4:1 and further requires that the chelating agent have one of the three specified structures designated structure II, structure III, and structure IV.

The Office Action states, “Maeda teaches a range of that is .01:1-100:1, column 15 line 14, which encompasses the claimed range of 1:4 to 4:1”. 03/17/2010 Office Action, page 6, paragraph no. 16. Applicants respectfully disagree with the Office’s characterization of Maeda. Applicants respectfully note that the cited passage of Maeda relates to “dyeing agents, peroxides, and surfactants”, not to chelating agents. Accordingly, Maeda’s teaching to use “dyeing agents, peroxides, and surfactants in a ratio of 0.1 to 100 weight parts per 1 weight part of the water-soluble polymer” is irrelevant to Applicants’ claim 19 polymer to chelating agent weight ratio.

The Office Action further states,

Example 2 teaches the addition of 0.15 g of zeolite (a chelating agent, column 21 line 62) in a pot with 5g of a 1% aqueous polymer solution (column 21 line 64). The ratio of chelating agent to polymer solution would then be 0.03:1 and the ratio of chelating agent to just the polymer (taking the 1 % dilution into consideration) would be 3:1, which reads on the claimed limitations.

03/17/2010 Office Action, page 6, paragraph no. 16. However, Maeda's zeolite is clearly outside the scope of the claim 19 chelating agent structures. In any case, Maeda's Example 2 does not involve the use of a polymer within the scope of Applicants' claim 19 polymer (note, in particular, that Maeda Example 2 utilizes polymers A1, A2, and B1, none of which includes a sulfonated monomer as required by the claim 19 polymer). So, Maeda's Example 2 teaching with respect to a zeolite amount is irrelevant to the claim 19 polymer to chelating agent weight ratio limitation.

In short, Maeda does not teach Applicants' claim 19 weight ratio of the polymer to the specified chelating agent. Therefore, claim 19 is not anticipated by Maeda. Dependent claims 20, 21, 23, and 25, which each depend directly from and further limit claim 19, are also not anticipated by Maeda.

Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claims 19-21, 23, and 25 under 35 U.S.C. § 102(b) over Maeda.

Obviousness Rejections over Yamaguchi + Maeda

Claims 2, 11, 12, 14-18, 24, and 26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Yamaguchi in view of Maeda. 03/17/2010 Office Action, page 8, paragraph no. 24 (claims 2, 11, 12, 14-18, and 26); page 13, paragraph no. 46 (claim 24). The rejection of claim 14 is moot in view of its present cancellation. Applicants respectfully traverse the rejections of claims 2, 11, 12, 15-18, 24, and 26 to the extent they may be applicable to the claims as currently amended.

Yamaguchi and Maeda are described above.

Applicants respectfully assert that claims 2, 11, 12, 15-18, 24, and 26 are patentable over Yamaguchi in view of Maeda because the cited references do not teach or

suggest Applicants' claim 1 polymer to chelating agent weight ratio of 1:4 to 4:1 or Applicants' claim 19 polymer to chelating agent weight ratio of 1:4 to 4:1, where the chelating agent has structure II or structure III or structure IV.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Establishing a *prima facie* case of obviousness requires that all limitations of the claim be taught or suggested by the prior art. *See, e.g., CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003); *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974).

Claims 2, 11, 12, 15-18, and 26 each depend ultimately from and further limit independent claim 1. As described above in the context of the anticipation rejection over Yamaguchi, Yamaguchi does not teach or suggest the polymer to chelating agent weight ratio of claim 1 as currently amended. Accordingly, Yamaguchi alone does not support a *prima facie* case of obviousness against claims 2, 11, 12, 15-18, and 26. The addition of Maeda does not cure the deficiency of Yamaguchi. Specifically, Applicants respectfully assert that the Office has not established that Maeda teaches or suggests the claim 1 polymer to chelating agent weight ratio of 1:4 to 4:1. To the extent that the Office might point to Maeda's Example 2 and assert that "[z]eolite is a known chelating agent" (03/17/2010 Office Action, page 3, paragraph no. 6), Applicants respectfully disagree with the Office's characterization of zeolite as a chelating agent and respectfully request that the Office produce a reference in support of its position. Moreover, Maeda Example 2 does not utilize a polymer within the scope of Applicants' claim 1 polymer. So, Maeda Example 2 cannot constitute a teaching to use any particular weight ratio of Applicants' claim 1 polymer to a chelating agent. Thus, the combination of Yamaguchi and Maeda fails to support a *prima facie* case of obviousness against claims 2, 11, 12, 15-18, and 26.

Claim 2 is further patentable over Yamaguchi and Maeda. The Office Action states, "Regarding claim 2, Maeda further teaches that the chelating agent and the polymer are introduced as a mixture or the chelating agent and the polymer are introduced separately (column 11 lines 10-13)." 03/17/2010 Office Action, page 9,

paragraph no. 26. Applicants respectfully disagree with the Office's characterization of the cited passage of Maeda. That passage teaches mixing "polymers A and B". It does not teach mixing a chelating agent and a polymer. So, contrary to the Office's assertion, the cited passage of Maeda does not teach the claim 2 limitation. Claim 2 is therefore further patentable over Yamaguchi and Maeda.

Claim 11 is also further patentable over Yamaguchi and Maeda. The Office Action states, "Regarding claim 11, Maeda further teaches that the formula I n is 0.4 to 0.9, m is 0.1 to 0.5, and k is 0 to 0.5 (ratio of A/B is 90/10, column 10 line 67)." 03/17/2010 Office Action, page 9, paragraph no. 27. Applicants respectfully disagree with the Office's characterization of the cited passage of Maeda. That passage teaches a ratio of polymer A to polymer B. In contrast, the claim 11 limitation relates to the ratio of monomer residues within a single polymer. So, contrary to the Office's assertion, the cited passage of Maeda does not teach the claim 11 limitation. Claim 11 is therefore further patentable over Yamaguchi and Maeda.

Claim 18 is also further patentable over Yamaguchi and Maeda. Claim 18 requires a specific chelating agent structure. Applicants respectfully assert that the Office has not established that either Yamaguchi or Maeda teaches or suggests a chelating agent within the scope of the claim 18 chelating agent structure. Accordingly, claim 18 is further patentable over Yamaguchi and Maeda.

Claim 24 depends directly from and further limits independent claim 19. As noted above, in the context of the anticipation rejections, Yamaguchi does not teach or suggest the polymer to chelating agent weight ratio of 1:4 to 4:1 (which is a feature of claim 19 as well as claim 1), and Maeda does not teach or suggest the claim 19 polymer to chelating agent weight ratio of 1:4 to 4:1, where the chelating agent has structure II or structure III or structure IV. The combination of Yamaguchi and Maeda thus fails to support a *prima facie* case of obviousness against claim 24.

For all of the above reasons, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 2, 11, 12, 15-18, 24, and 26 under 35 U.S.C. § 103(a) over Yamaguchi in view of Maeda.

Obviousness Rejections over Yamaguchi

Claims 7-9 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Yamaguchi. 03/17/2010 Office Action, page 11, paragraph no. 36. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

Yamaguchi is described above.

Claims 7-9 each depend ultimately from and further limit claim 1. As noted above in the context of the anticipation rejections over Yamaguchi, Yamaguchi does not teach or suggest the claim 1 polymer to chelating agent weight ratio of 1:4 to 4:1. Yamaguchi therefore fails to support a *prima facie* case of obviousness over Yamaguchi.

Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claims 7-9 under 35 U.S.C. § 103(a) over Yamaguchi.

Obviousness Rejections over Yamaguchi + Maeda + Andersson

Claims 7 and 13 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Yamaguchi in view of Maeda and in view of Andersson et al, USP 5,658,429. 03/17/2010 Office Action, page 12, paragraph no. 41. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as currently amended.

Yamaguchi and Maeda are described above.

U.S. Patent No. 5,658,429 to Andersson et al. (hereinafter “Andersson”) generally describes a process for delignification and bleaching of chemically digested lignocellulose-containing pulp, where the pulp is treated with a complexing agent at a pH between 3.1 and 9.0, whereupon the pulp is bleached with ozone. Andersson abstract.

Applicants respectfully assert that claims 7 and 13 are patentable over the combination of Yamaguchi, Maeda, and Andersson because the cited references do not teach or suggest Applicants’ claim 1 polymer to chelating agent weight ratio.

Claims 7 and 13 each depend ultimately from and further limit claim 1. As described in detail above in the context of the obviousness rejections over Yamaguchi and Maeda, those references do not support a *prima facie* case of obviousness against claim 1 because the references fail to teach or suggest the claim 1 polymer to chelating agent weight ratio. The deficiencies of Yamaguchi and Maeda are not cured by addition of Andersson, which is cited as teaching “the treatment with a complexing agent (which is listed as a chelating agent compound, column 3) at a pH of preferably 5-7 (column 2 line 33) in an amount of .5-5 kg/ton of dry pulp (column 3 line 39).” 03/17/2010 Office Action, pages 12-13, paragraph no. 44. Thus, the combination of Yamaguchi, Maeda, and Andersson does not support a *prima facie* case of obviousness against claims 7 and 13.

Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claims 7 and 13 under 35 U.S.C. § 103(a) over Yamaguchi, Maeda, and Andersson.

Provisional Nonstatutory Double Patenting Rejections

Claims 1-26 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 13-28, 7-8, 1-6, and 22 of copending Application No. 11/596,140. 03/17/2010 Office Action, page 14, paragraph no. 51.

Applicants thank the Examiner for pointing out the potential obviousness-type double patenting issue between the claims of the present application and those of copending application No. 11/596,140. In view of the possibility that claims in the cited application or the present application will be further amended before allowance, Applicants will defer responding to this provisional rejection until claims in the reference application are allowed, claims in the present application are otherwise allowable, and it is determined whether this provisional rejection becomes an actual rejection.

Moreover, should the provisional nonstatutory double patenting rejection become the sole rejection against the present claims, it should be dropped because the present

application was earlier filed than the cited application. MPEP 804(I)(B)(1) (“If a ‘provisional’ nonstatutory obviousness-type double patenting (ODP) rejection is the only rejection remaining in the earlier filed of the two pending applications, while the later-filed application is rejectable on other grounds, the examiner should withdraw that rejection and permit the earlier-filed application to issue as a patent without a terminal disclaimer.”).

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is respectfully requested.

It is believed that all the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' Attorneys.

Respectfully submitted,

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